#4

Express Mail Label No. EL844511614US
Date of Deposit: January 30, 2002
ATTORNEY'S DOCKET NO: W00528/70010 JNA

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:	Donald E. Drumm
Serial No:	09/966,031
Filed:	September 28, 2001
For:	PORTABLE BAR CODE SIMULATOR DEVICE AND METHOD
Examiner:	Not yet assigned
Art Unit:	2876

Commissioner for Patents
Washington, D.C. 20231

PRELIMINARY AMENDMENT

Sir:

Prior to examination on merits, please amend the above-identified application as follows:

In the Figures:

Please amend the for Figures 1, 2, 3, 4A, 4B, 5A, 5B, 6, 7A, 7B, 7C, 8A, 8B, 9B, 10A, 10B, 11, 12, 13, 14 and 15 as proposed under separate letter (enclosed) to the Official Draftsperson.

In the Specification:

Please replace the paragraph beginning at line 18 of page 4 as shown.

FIGS. 2A, 2B illustrate side and front views respectively of components of an embodiment of the EBCS device;

Please replace the paragraph beginning at line 22 of page 4 as shown.

FIGS. 4A, 4B illustrate side and top views respectively of some components of an embodiment of the EBCS;

Please replace the paragraph beginning at line 13 of page 5 as shown.

FIGS. 9A, 9B illustrate one embodiment of a method of storing sequences in memory to simulate light reflected from a bar code by a bar code scanner operating in uni-directional and bi-directional modes of operation;

Please replace the paragraph beginning at line 16 of page 5 as shown.

FIGS. 10A, 10B illustrate exemplary output drive signal and check signals for respective fast clocking and slow clocking, for an embodiment of the EBCS;

Please replace the paragraph beginning at line 18 of page 5 as shown.

FIGS. 11A, 11B illustrate a schematic diagram of an embodiment of the EBCS;

Please replace the paragraph beginning at line 27 of page 6 and ending on line 13 of page 7 as shown.

FIGS. 2A, 2B illustrate some components of an EBCS device according to some embodiments of the present invention. A photo-diode 2 and an LED 4 (Light Emitting Diode LED) are affixed to a printer circuit board 12 in close proximity to one another and in vertical alignment. In this way, the photo-diode and the LED appear at substantially a same moment along a time axis with respect to a scanner signal traversing the EBCS device. The photo-diode can be any suitable photo-sensitive element that responds to light in the frequency spectrum of known bar code scanners. In one embodiment the LED is a wide angle point source without any lens molded into the package. The wide angle LED can provide the simulated signal over a sufficient angle to closely match an "appearance" of back-scattered light reflected from a printed bar code. In addition, a light pipe 14, or any suitable single axis lens can be light coupled to the photo-diode with an axis orthogonal to an axis traversed by a scanner signal. A plastic single axis light pipe is illustrated in FIGS. 2A, 2B, however, it is to be appreciated that a light pipe of glass, fiber optic material, or any other material suitable for collecting and focusing light along at least one axis may be used. One advantage of an EBCS device having a lens, is that the lens provides an extended detector target area along an axis orthogonal to a direction a scanner signal traverses, which obviates any need for operator precision of focusing the scanning device on the

photo detector, and allows for non-critical alignment between the bar code simulator device and the scanner.

Please replace the paragraph beginning at line 19 of page 17 and ending on line 11 of page 18 as shown.

FIGS. 11A, 11B illustrate a schematic diagram of one embodiment of the ECBS 100 device. Two photo-detectors 2a,b that detect the presence of a bar code scanner signal are coupled to a microprocessor 6. The microprocessor is coupled to an EEPROM device 22 that stores sequences corresponding to simulated bar code signals as described in conjunction with FIG 10. The EEPROM device is coupled to a pair of LEDs 4a,b through a MOSFET (Metal Oxide Semiconductor Field Effect Transistor) 54. The microprocessor 6 is coupled to a clock signal 46 and is capable of internally synthesizing a variable frequency clock signal from clock signal generator 46 and providing the variable frequency clock signal on signal line 56. The microprocessor provides the clock signal at a selected frequency to a clock input 48 of the EEPROM device in order to clock out the stored sequences in a serial fashion as described in conjunction with FIGS. 9a and 9b. The data is clocked out of memory in a serial bitstream, a singe bit at a time. It is desirable that the rising and falling edges of a signal driving the LEDs maintain as square a shape as possible to reduce the transition time between LED "ON" and "OFF" states, even at high frequency signal transitions. To achieve this the output 50 from the EEPROM device is coupled to a MOSFET 54 capable of providing driving signals with the edge integrity to drive the LEDs such that the emitted signal properly simulates the light pattern reflected from a bar code. According to some embodiments of the EBCS device, the microprocessor is programmed to vary the frequency of the synthesized clock signal applied to the EEPROM according to the speed of a scanner signal detected by any of the methods discussed herein and can be configured according to any other method that is apparent to one of skill in the art. The microprocessor can also be programmed to instruct the EEPROM to clock out sequences and reverse sequences, as discussed in conjunction with FIG. 9a, dependent upon whether a uni-directional or bi-directional type scanner has been detected by any of the methods described herein, and can be configured according to any other method that is readily apparent to one of skill in the art.

Please replace the paragraph beginning at line 12 of page 18 as shown.

FIG. 12 illustrates another embodiment of the EBCS 100 device according to the present invention. This embodiment comprises many of the same components as the embodiment of FIGS. 11A, 11B, including the photo-detectors 2a,b coupled to a microprocessor 6, the EEPROM device 22 coupled to one LED 4a through a MOSFET driver 54. The description of the operation of these components is therefore not repeated and it is to be understood that this embodiment of the EBCS also comprises a docking station 52. The docking station allows bar code sequences to be transferred to or downloaded from an associated computer. The docking station includes two LEDs 4b,c that are disposed within the docking station such that they are in alignment with the photo-detectors 2a,b of the EBCS device in order to be able to communicate with the photo-detectors when the EBCS device is connected to the docking station. The docking station further includes a photo-detector 2c disposed within the docking station in alignment with the LED 4a of the EBCS device when the EBCS device is connected to the docking station, which can detect simulated bar code signals emitted by the EBCS device. The docking station may also include a serial or parallel port connection to allow communication with a PC or other associated computer. According to some embodiments of the EBCS device, the microprocessor 6 can be configured to store incoming bar code signals as sequences in the EEPROM device, when the EBCS device is attached to the docking station. With this arrangement, bar codes can be transferred to a computer from the EBCS device, or downloaded from a computer to the EBCS device.

REMARKS

Applicant proposes changes to the figures and the specification . No new matter has been added. The figures were revised to comply with the rules of practice, while preparing formal drawings. The specification has been revised to be consistent with the formal drawings. The Examiner is respectfully requested to approve these proposed changes.

It is respectfully requested that the foregoing Preliminary Amendment be entered prior to examination of the application, to place the application in better condition for examination and allowance.

If this response is not considered timely filed and if a request for an extension of time is otherwise absent, Applicants hereby request any necessary extension of time. If there is a fee occasioned by this response, including an extension fee, that is not covered by an enclosed check, please charge any deficiency to Deposit Account No.: 23/2825.

Respectfully submitted,
Donald E. Drumm, Applicant

By: _____

John N. Anastasi, Reg. No. 37,765
Wolf, Greenfield & Sacks, P.C.
600 Atlantic Avenue
Boston, MA 02210
Tel. (617) 720-3500
Attorneys for Applicant

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W00528/70010

MARKED UP SPECIFICATION

Please replace the paragraph beginning at line 18 of page 4 as shown.

[FIG] FIGS. 2A, 2B illustrate side and front views respectively of components of an embodiment of the EBCS device;

Please replace the paragraph beginning at line 22 of page 4 as shown.

[FIG] FIGS. 4A, 4B illustrate side and top views respectively of some components of an embodiment of the EBCS;

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[FIG. 9 illustrates] FIGS. 9A, 9B illustrate one embodiment of a method of storing sequences in memory to simulate light reflected from a bar code by a bar code scanner operating in uni-directional and bi-directional modes of operation;

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[FIG. 10 illustrates] FIGS. 10A, 10B illustrate exemplary output drive signal and check signals for respective fast clocking and slow clocking, for an embodiment of the EBCS;

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FIGS. 11A, 11B illustrate a schematic diagram of an embodiment of the EBCS;

Please replace the paragraph beginning at line 27 of page 6 and ending on line 12 on page 7 as shown.

[FIG. 2 illustrates] FIGS. 2A, 2B illustrate some components of an EBCS device according to some embodiments of the present invention. A photo-diode 2 and an LED 4 (Light Emitting Diode LED) are affixed to a printer circuit board 12 in close proximity to one another and in vertical alignment. In this way, the photo-diode and the LED appear at substantially a same moment along a time axis with respect to a scanner signal traversing the EBCS device. The photo-diode can be any suitable photo-sensitive element that responds to light in the frequency spectrum of known bar code scanners. In one embodiment the LED is a wide angle

point source without any lens molded into the package. The wide angle LED can provide the simulated signal over a sufficient angle to closely match an "appearance" of back-scattered light reflected from a printed bar code. In addition, a light pipe 14, or any suitable single axis lens can be light coupled to the photo-diode with an axis orthogonal to an axis traversed by a scanner signal. A plastic single axis light pipe is illustrated in [FIG. 2] FIGS. 2A, 2B, however, it is to be appreciated that a light pipe of glass, fiber optic material, or any other material suitable for collecting and focusing light along at least one axis may be used. One advantage of an EBCS device having a lens, is that the lens provides an extended detector target area along an axis orthogonal to a direction a scanner signal traverses, which obviates any need for operator precision of focusing the scanning device on the photo detector, and allows for non-critical alignment between the bar code simulator device and the scanner.

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[FIG. 11 illustrates] FIGS. 11A, 11B illustrate a schematic diagram of one embodiment of the ECBS 100 device. Two photo-detectors 2a,b that detect the presence of a bar code scanner signal are coupled to a microprocessor 6. The microprocessor is coupled to an EEPROM device 22 that stores sequences corresponding to simulated bar code signals as described in conjunction with FIG 10. The EEPROM device is coupled to a pair of LEDs 4a,b through a MOSFET (Metal Oxide Semiconductor Field Effect Transistor) 54. The microprocessor 6 is coupled to a clock signal 46 and is capable of internally synthesizing a variable frequency clock signal from clock signal generator 46 and providing the variable frequency clock signal on signal line 56. The microprocessor provides the clock signal at a selected frequency to a clock input 48 of the EEPROM device in order to clock out the stored sequences in a serial fashion as described in conjunction with FIGS. 9a and 9b. The data is clocked out of memory in a serial bitstream, a singe bit at a time. It is desirable that the rising and falling edges of a signal driving the LEDs maintain as square a shape as possible to reduce the transition time between LED "ON" and "OFF" states, even at high frequency signal transitions. To achieve this the output 50 from the EEPROM device is coupled to a MOSFET 54 capable of providing driving signals with the edge integrity to drive the LEDs such that the emitted signal properly simulates the light pattern reflected from a bar code. According to some embodiments of the EBCS device, the microprocessor is programmed to vary the frequency of

the synthesized clock signal applied to the EEPROM according to the speed of a scanner signal detected by any of the methods discussed herein and can be configured according to any other method that is apparent to one of skill in the art. The microprocessor can also be programmed to instruct the EEPROM to clock out sequences and reverse sequences, as discussed in conjunction with FIG. 9a, dependent upon whether a uni-directional or bi-directional type scanner has been detected by any of the methods described herein, and can be configured according to any other method that is readily apparent to one of skill in the art.

Please replace the paragraph beginning at line 12 of page 18 as shown.

FIG. 12 illustrates another embodiment of the EBCS 100 device according to the present invention. This embodiment comprises many of the same components as the embodiment of [FIG. 11] FIGS. 11A, 11B, including the photo-detectors 2a,b coupled to a microprocessor 6, the EEPROM device 22 coupled to one LED 4a through a MOSFET driver 54. The description of the operation of these components is therefore not repeated and it is to be understood that this embodiment of the EBCS also comprises a docking station 52. The docking station allows bar code sequences to be transferred to or downloaded from an associated computer. The docking station includes two LEDs 4b,c that are disposed within the docking station such that they are in alignment with the photo-detectors 2a,b of the EBCS device in order to be able to communicate with the photo-detectors when the EBCS device is connected to the docking station. The docking station further includes a photo-detector 2c disposed within the docking station in alignment with the LED 4a of the EBCS device when the EBCS device is connected to the docking station, which can detect simulated bar code signals emitted by the EBCS device. The docking station may also include a serial or parallel port connection to allow communication with a PC or other associated computer. According to some embodiments of the EBCS device, the microprocessor 6 can be configured to store incoming bar code signals as sequences in the EEPROM device, when the EBCS device is attached to the docking station. With this arrangement, bar codes can be transferred to a computer from the EBCS device, or downloaded from a computer to the EBCS device.

#3

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Examiner:	Not yet assigned
Art Unit:	2876

Attn: Official Draftsperson
Commissioner for Patents
Washington, DC 20231

LETTER TO OFFICIAL DRAFTSPERSON

Sir:

Enclosed are fourteen (14) sheets of proposed drawing corrections for Figures 1, 2, 3, 4A, 4B, 5A, 5B, 6, 7A, 7B, 7C, 8A, 8B, 9B, 10A, 10B, 11, 12, 13, 14 and 15. The proposed corrections are marked in red ink. The Examiner is respectfully requested to approve these proposed drawing corrections.

Further, Applicant submits fourteen (14) pages of Formal Drawings, Figs. 1-15, including the proposed changes to the figures as submitted above.

The Commissioner is hereby authorized to charge any fees which may be required to Deposit Account No. 23-2825. A duplicate of this sheet is enclosed.

Respectfully submitted,
Donald E. Drumm, Applicant

By: [signature]

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Dated: January 30, 2002
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590921.1

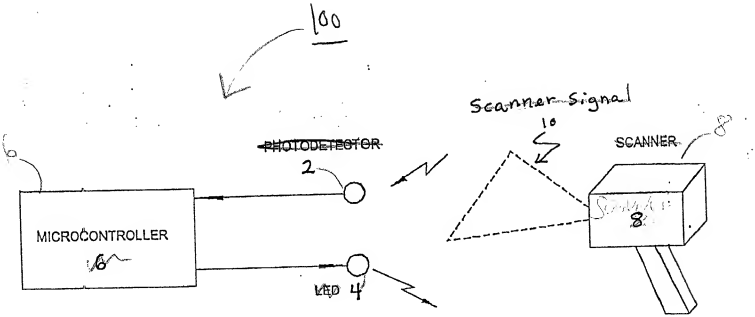


FIG. 1

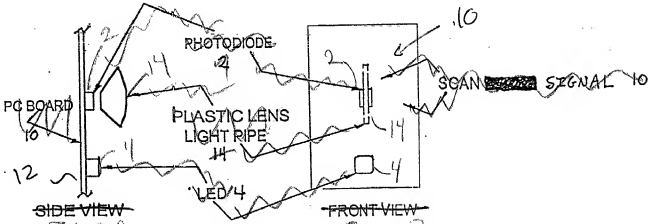


FIG 2

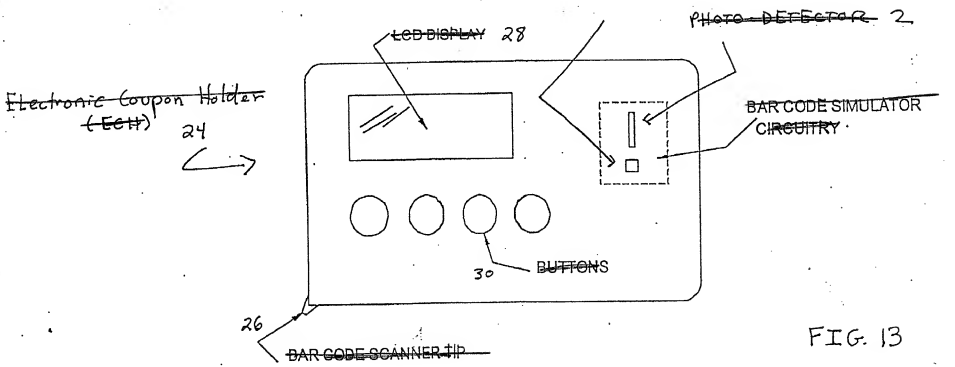


FIG. 13

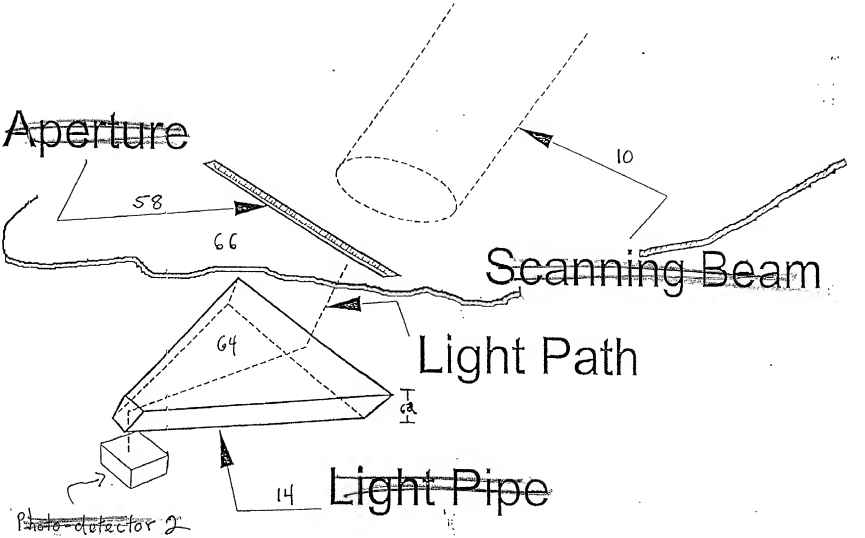


FIG. 3

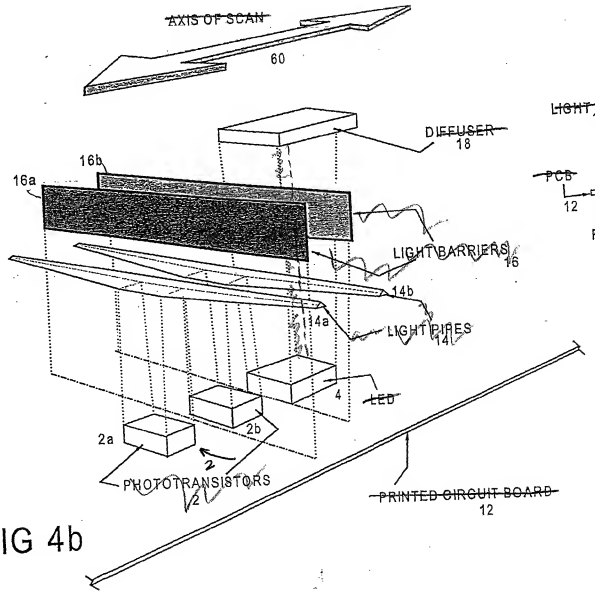
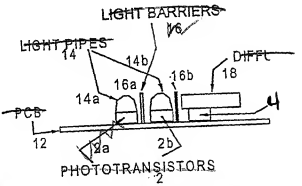
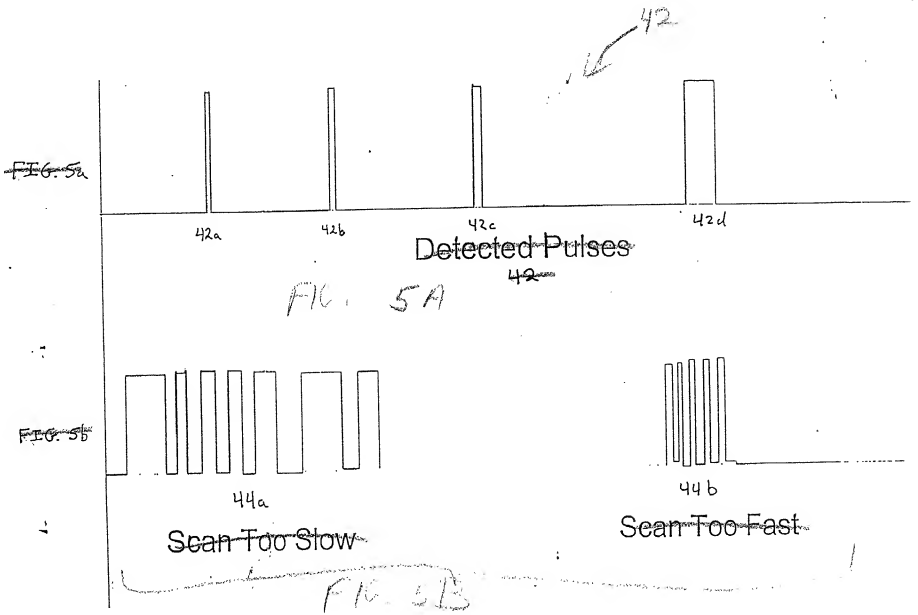


FIG 4b



SIDE VIEW

FIG 4a



~~FIG. 5a~~

FIG. 5A

~~FIG. 5b~~

FIG. 5B

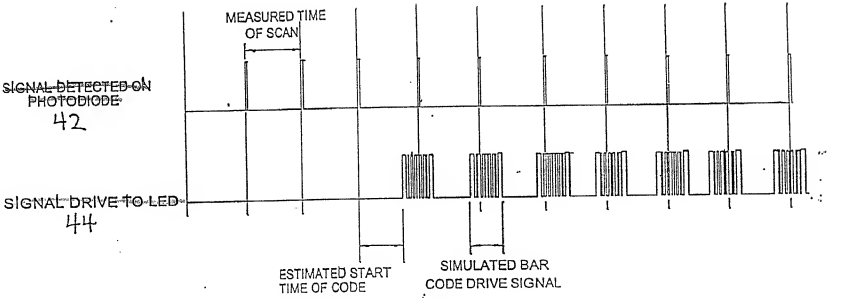
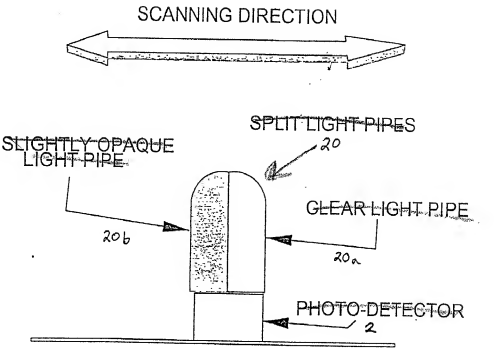
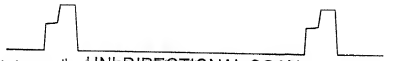


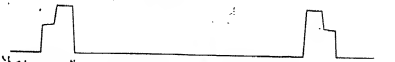
FIG. 6



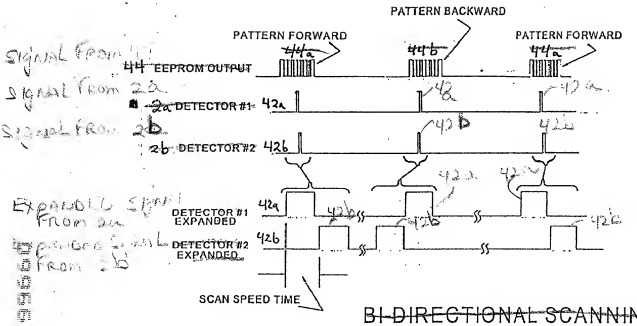
SIDE VIEW DETECTOR ASSEMBLY
FIG. 7a



UNI-DIRECTIONAL SCAN
FIG 7b

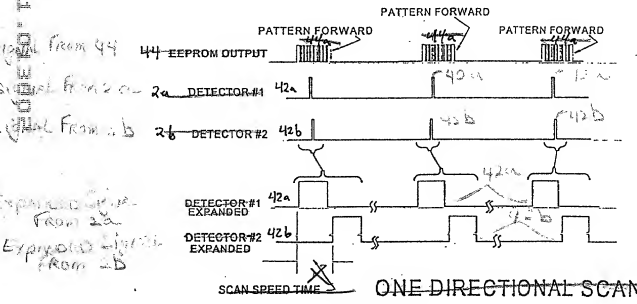


BI-DIRECTIONAL SCAN
FIG 7c



BI-DIRECTIONAL SCANNING

FIG. 8a



ONE DIRECTIONAL SCANNING

FIG. 8b

EEPROM Address	Data	Bi-directional Operation	Uni-Directional Operation
100	0xFF	Start Here	Start Here
101	0xFF		
102	0x50		
103	0xAD		
104	0xDD		
105	0x65		
106	0x11		
107	0x6B	Forward	
108	0x4C	Image	
109	0xEA		
110	0x75		
111	0x4B		
112	0x92		
113	0xd4		
114	0x2F		
115	0xFF		
116	0xFF	Pause till	End Image Here
117	0xFF	Next scan	
118	0xFF		
119	0x42		
120	0xB4		
121	0x9D		
122	0x2A		
123	0xE5		
124	0x73	Reverse	
125	0x2D	Image	
126	0x68		
127	0x8A		
128	0x6B		
129	0xBB		
130	0x50		
131	0xAF		
132	0xFF		
133	0xFF	End Image here	

FIG. 9a

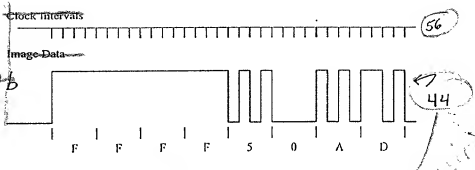


FIG. 9b

FAST CLOCKING

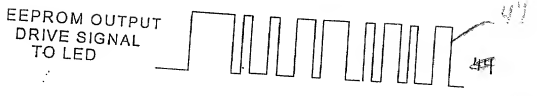


FIG 10A

SLOW CLOCKING

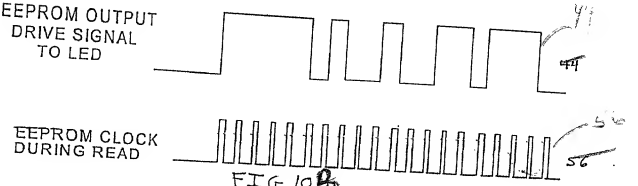


FIG 10B

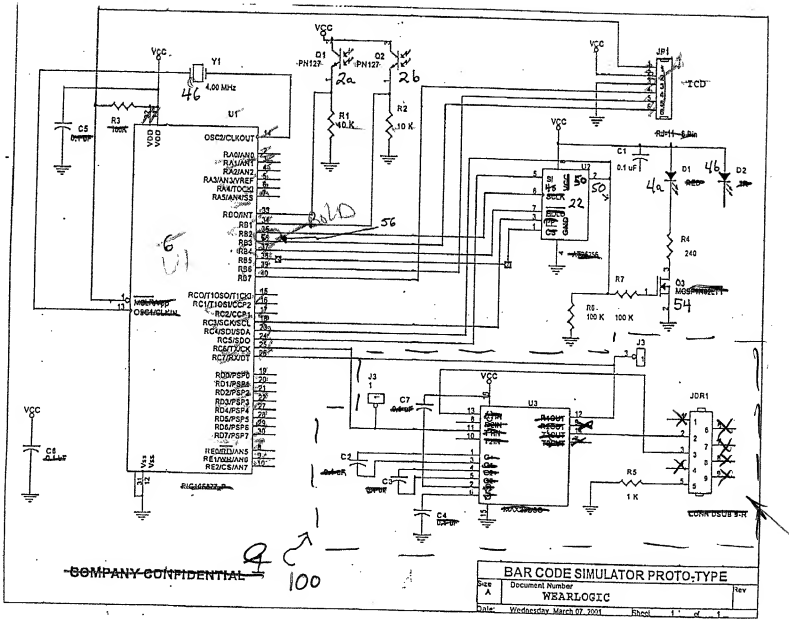


FIG. 11A

Fig. 11B

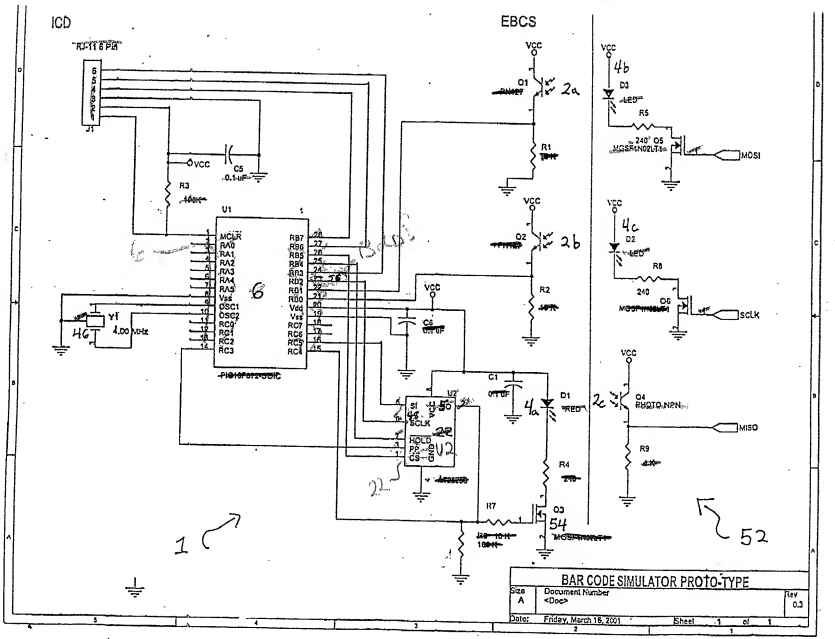


FIG. 12

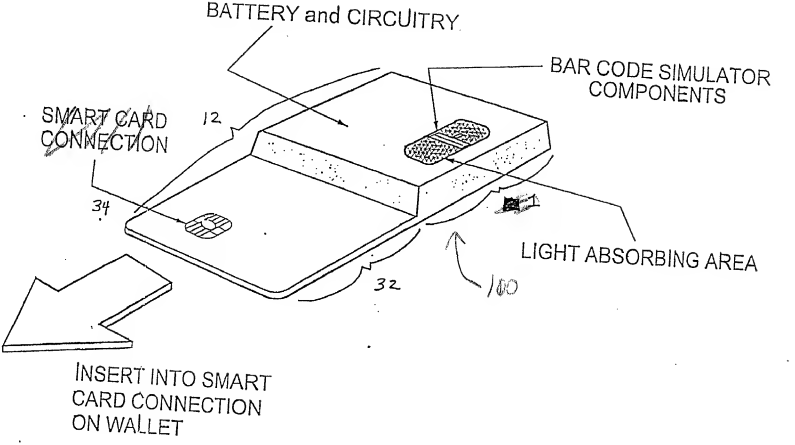


FIG. 14

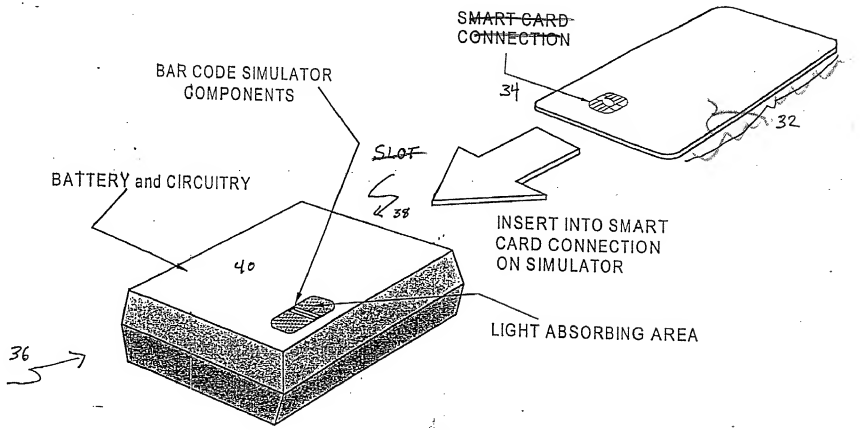


FIG. 15